

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 5 November 2003. Responsive to the rejections made in the Official Action, Claims 1 and 2 have been canceled by this Amendment and replaced with new Claims 3-13, in order to clarify the combination of elements which form the invention of the subject Patent Application.

In the Official Action, the Examiner objected to the Drawings as failing to comply with 37 C.F.R. § 1.84(p)(5), because they included a reference sign not mentioned in the Description. The Examiner indicated that reference numeral 21, shown in the Drawings, was not described in the Specification.

It is respectfully submitted that the electrode 21 is described in the Specification, on Page 2, in the “Annotation in Figures” section. However, to clarify the Specification, the Description of the Preferred Embodiment has been amended to reiterate that the reference numeral 21 refers to an electrode. As that reference number was identified in the “Annotation in Figures” section and clearly shown in the Drawings, it is not believed that any new matter has been added by this Amendment. In addition to adding the reference numeral 21 to the Description of the Preferred Embodiment, several other idiomatic and grammatical errors have been corrected. Still further, the original Specification stated that the addition of the diffusion layer was the same principle as the diffusion film in LCD backlight module. However, it is believed that such language was

the result of a translational error, as the diffusion layer 4 of the invention of the subject Patent Application overlays the fluorescent powder layer (phosphor layer) 3, which is not the structure of an LCD backlight module. It is believed that the appropriate translation would be that Applicant's diffusion layer --adopts a principle similar to that of the diffusion film in an LCD backlight module--. The principle that is the same, is the function of providing a uniform light distribution. It is not believed that the change introduces new matter and that the error would be obvious to one of ordinary skill in the art.

In the Official Action, the Examiner rejected Claims 1 and 2 under 35 U.S.C. § 103, as being unpatentable over Shimizu, et al., U.S. Patent #6,069,440, in view of Ando, et al., U.S. Patent #5,836,676. The Examiner stated that the Shimizu, et al. reference disclosed a light emitting diode having a mount lead and an inner lead, wherein the light emitting component is installed on a cup of the mount lead and the cup is filled with a coating resin which contains a specified phosphor to cover the light emitting component and is molded in resin. The Examiner further states that the reference discloses that the light emitted from the LED combines light emitted from the light emitting component and the phosphor. The Examiner then admits that the reference does not disclose a diffusion layer containing inorganic glass powder or polymeric material. However, the Examiner then refers to the Ando, et al. reference as disclosing LED chips coated with a

protection material such as silicon or epoxy resin, wherein the silicon or epoxy resin not only protects the chips, but also expands a critical angle of the light emitting diode chips so that output light is increased and luminous efficiency is enhanced. The Examiner then concludes that it would have been obvious to one of ordinary skill at the time the invention was made to have utilized the lens of Ando, et al. for a light emitting diode of Shimuzu, et al.

Before discussing the prior art relied upon by the Examiner, it is believed beneficial to first briefly review the structure of the invention of the subject Patent Application. The originally filed Claims were a combination of method and structure that were believed to be confusing. As both method and structure were combined in the original Claims, it is believed that Applicant has retained the right to claim both the inventive method and structure. Therefore, by this Amendment, both method and structure Claims have been added and the original Claims canceled. The invention of the subject Patent Application improves upon structures like that of Shimuzu, et al. in the addition of a light diffusion layer overlaying the phosphor layer to provide a substantially even distribution of the emissions of the first and second wavelengths (emissions from both the LED chip and the phosphor layer). A separate encapsulant is molded over the structure to encase the LED chip, the phosphor layer, and the diffusion layer. Still further, the diffusion layer may include a plurality of transparent microparticles for refracting the emissions from the LED chip and the phosphor layer. The microparticles

may be formed of an inorganic glass such as silicon dioxide glass, or a transparent polymeric material such as PMMA, PC, PE, and PET. Still further, titanium dioxide may also be included in the diffusion layer.

As the Examiner admits, the Shimuzu, et al. reference neither discloses nor suggests the incorporation of any material or layer for diffusing the light emitted by the chip 102 and the phosphor composition 101.

The Ando, et al. reference does not overcome the deficiencies of Shimuzu, et al. It is respectfully submitted that the reference discloses the inclusion of a protective layer formed of a silicon resin or epoxy resin, Column 5, Lines 35-37, which coating functions as a lens to expand the "field of view" (emission angle) of the LED chips so coated. A silicon coating is not equivalent to or suggestive of particulates of silicon glass suspended in a resin or gel. Further lenses incorporated into the LED package further serve to direct the emissions from the LED chips, not provide uniformity of the illumination. Nowhere does the reference disclose or suggest adding a diffusion layer that functions to substantially even the distribution of emissions from the LED chips, and neither discloses nor suggests the incorporation of transparent microparticles for refracting the emissions from the LED chip and phosphor material layer. Still further, the reference neither discloses nor suggests the use of titanium dioxide as a light diffusion component. Still further, the reference neither discloses nor suggests utilizing an inorganic glass of any type, nor more specifically silicon dioxide glass. Further, the reference neither discloses

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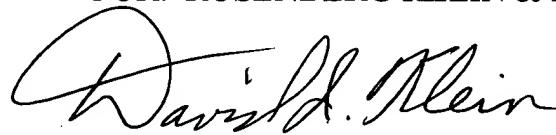
Responsive to Official Action dated 5 November 2003

nor suggests a layer having transparent microparticles formed of a polymeric material, and more specifically formed of one of PMMA, PC, PE, AND PET. Thus, the combination of Shimuzu, et al. and Ando, et al. cannot make obvious the invention of the subject Patent Application, as now claimed.

For all the foregoing reasons, it is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

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Dated: 30 Jan 2004

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